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PROVISIONAL SPECIFICATION.

Improvements in Midwifery Forceps.

I, ERNEST ELIAS TIDBOALD BADCOCK GREVILLE, of 12 Teviot Place, Edinburgh, Surgical Instrument Maker, do hereby declare the nature of this invention to be as follows :—

My invention relates to the manufacture of midwifery forceps of the class made
5 throughout of metal, and has for its object to reduce the danger of sepsis to a minimum, to improve the handles by so disposing of the metal as to increase the grasping power by fitting the hand while dispensing with all superfluous metal or additional parts, also abolishing the necessity for soldering, brazing or rivetting in attaining this end: when traction rods are required, as in some patterns of forceps, I
10 do away with the movable nut and screwed pin usually employed and substitute therefor a solid head or pin so shaped as to only pass in one position, in or out of a countersunk hole or slot cut to correspond therewith in the forceps.

To obtain these improvements in practice I prefer to forge each of the two sides or blades of the forceps out of a single piece of Steel large enough to allow of the
15 formation of blade and handle to the desired thickness and shape to permit of further process of dishing stamping or blocking to form the handles of the requisite lightness and rigidity. I likewise forge the traction rods out of the solid and turn or otherwise shape the head to operate as a joint pin retained in position by a solid washer or collar fitting the countersunk hole formed in and finish all flush with the
20 inside of the forceps shank.

Dated this 8th day of August 1896.

ISAAC BECK,
65 Brown Street, Sheffield, Agent for the Applicant.

COMPLETE SPECIFICATION.

25 **Improvements in Midwifery Forceps.**

I, ERNEST ELIAS TIDBOALD BADCOCK GREVILLE, of 12 Teviot Place, Edinburgh, Surgical Instrument Maker, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

30 My invention relates to the manufacture of midwifery forceps of the class made throughout of metal, and has for its object to reduce the danger of sepsis to a minimum, to improve the handles by so disposing of the metal as to increase the grasping power by fitting the hand while dispensing with all superfluous metal or additional parts and abolishing the necessity for soldering, brazing or rivetting in
35 attaining this; when traction rods are required, as in some patterns of forceps, I do

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away with the movable nut and screwed joint pin usually employed and substitute therefor a solid head or pin so shaped as to only pass in one position in or out of a countersunk hole or slot cut to correspond therewith in the forceps.

And in order that my invention may be more clearly understood, I will now proceed to describe it by reference to the Sheets of Drawings annexed hereto, wherein similar 5 letters refer to similar parts throughout the several views.

Fig. 1. represents the shell-like handle of a pair of forceps.

Fig. 2. is a section of the same on the line, *a, b*, of Fig. 1.

Fig. 3. is an internal view of one half or detached handle.

Fig. 4. Illustrates my improved handle as forming part of ordinary forceps one 10 single traction bar and handle.

Fig. 5. Likewise illustrates forceps of the "Milne-Murray or Simpson" type having double traction rods secured and constructed throughout according to my invention.

Fig. 6. Two views of the head end joint of traction rod detached. 15

Fig. 7. Views of the opposite ends of a pair of traction rods having coned locking arrangement open.

Fig. 8. A pair of similar ends closed and locked ready to receive usual handle.

Fig. 9. Also shows a pair of similar rod ends arranged and constructed with my 20 T shape locking device.

Fig. 10. Illustrates my improved shell like handle as applied to a pair of forceps, the parts of said handle forming a close joint.

In carrying my invention into practice, I prefer to forge each of the two sides or parts of a pair of forceps out of a single piece of steel large enough to allow for the 25 formation therefrom of both blade or "fenestrum," B, and also of the half handle, A, and so shape said part, A, that, when entire, as to afford a suitable grip, while to reduce the weight of the complete handle, the steel is worked away internally by dishing stamping or other hollowing process to produce a comparatively shell like handle perfectly rigid and serviceable to the hand gripping it in traction. 30

When traction rods are also required for forceps of for example the "Milne-Murray or Simpson" type illustrated by Fig. 5, I make in each shank of forceps an oblong hole in the longitudinal direction and cut on the inner side a circular recess or countersink for the reception of the traction rod head, T, and its neck joint attachment forming a further element in my improvement. 35

The traction rods, R, I likewise forge out of the solid steel and at one end projecting inward I form turn or otherwise a head or collar, T, which with the under part or neck thereof constitute a joint pin and attachment to the forceps, to enable the head to pass through the slot hole in forceps shank, I cut or file away the said collar transversely on its opposite sides to about the level of the neck or pin portion 40 to enable it to pass through the aforesaid slot hole, but in order to attach or detach the traction rod it must be held up in a position nearly at right angles with the forceps so that when the rod is brought into the using position the head is rotated in the recess and thereby effectually secures said rod firmly without the use of any extraneous parts: The opposite or shank ends of a pair of traction rods are bent 45 inward toward each other and are braced together by one or other of the following devices, *i.e.*, the said bent shank may be shaped to lock together by means of a cone shaped head, K, fitting into a tapered hole so pulling the shoulders of said ends firmly together. Or the said ends of traction rods may be shaped to form a stepped cover joint, D, one end having a T shaped head projecting downward through 50 a suitably shaped hole in the corresponding end so that both ends are secured together on the same principle as before described in head joint, T, attaching traction rods to forceps; the T head or projection effectually prevents the rod shanks falling out of position when temporally released by the removal of the usual slot plate, P, with its handle, H; the usual studs or buttons, O, O, are also inserted in 55 the upper faces of rod ends to receive said plate and handle appliance.

I am aware that traction rods have been formed with somewhat similar solid

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heads and attached to the forceps by means of a slotted opening made from the blade or fenestrated portion into the shank or solid portion of forceps; but I lay no claim to that mode of attachment which has been found to be objectionable in use.

5 Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1st. In midwifery forceps of which each side is made out of a single piece of metal the formation of enlarged shell handles of curved outline shaped with a
10 corresponding internal cavity substantially as herein described and illustrated.

2nd. In midwifery forceps fitted with traction rods the method of attaching such rods by means of a solid head passed through a slot shaped hole in forceps shank together with the means for locking and releasing the shank ends of such rods substantially as described and illustrated.

15 3rd. In midwifery forceps the combination of light metallic shell handles and of traction rods jointed and held together without screwed pins or other extraneous parts all substantially as described and illustrated.

Dated this First day of May 1897.

ISAAC BECK, F.S.P.A.,

20 Haymarket Chambers, Sheffield, late 65 Brown Street,
Agent for the Applicant.

Redhill: Printed for Her Majesty's Stationery Office, by Malcomson & Co., Ltd.—1897.



SHEET 1.

FIG. 1.

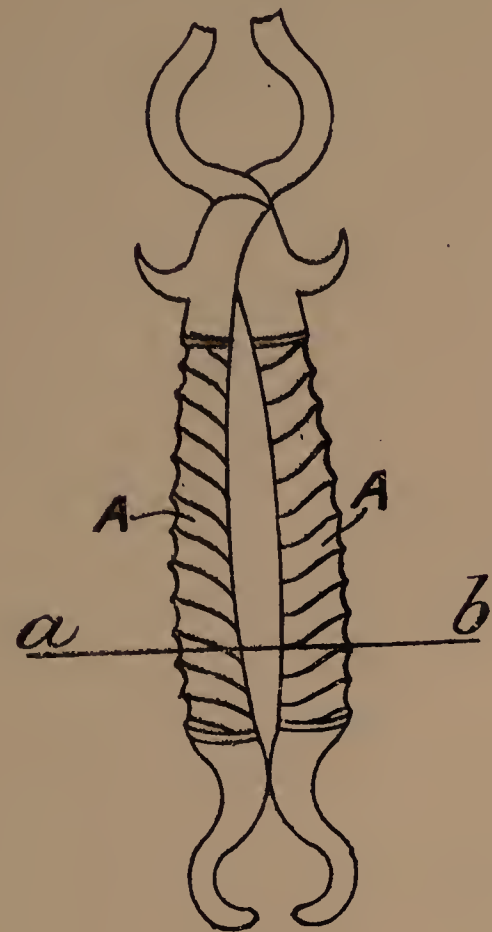


FIG. 3.

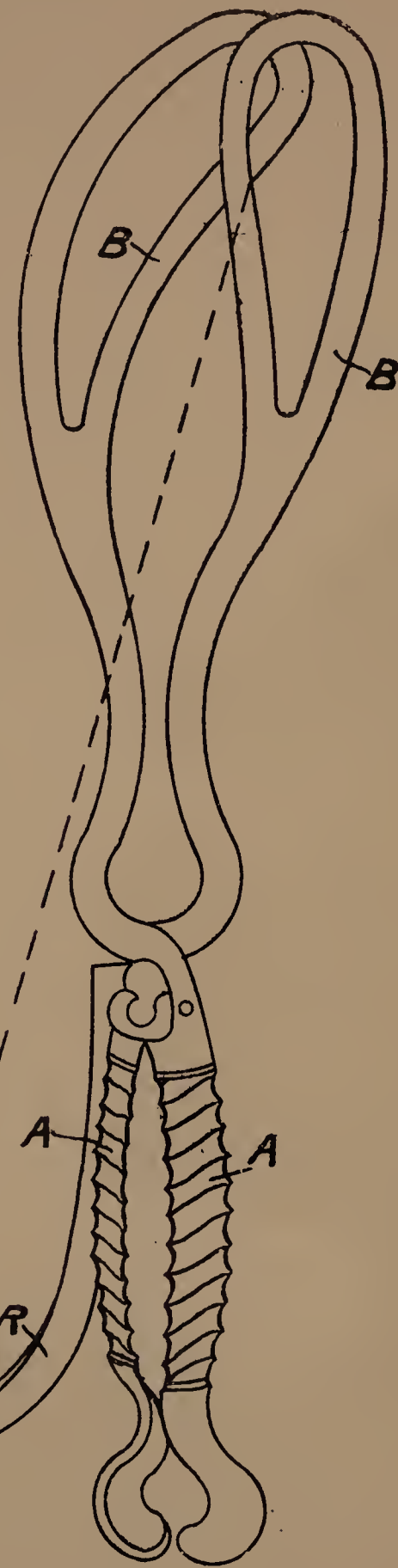


FIG. 2.



FIG. 7.

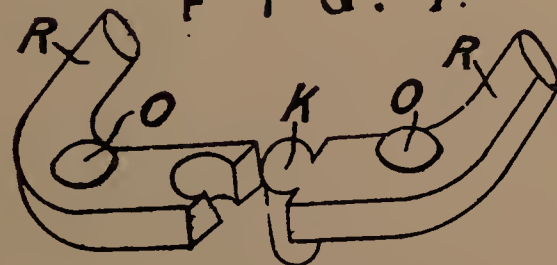


FIG. 8.

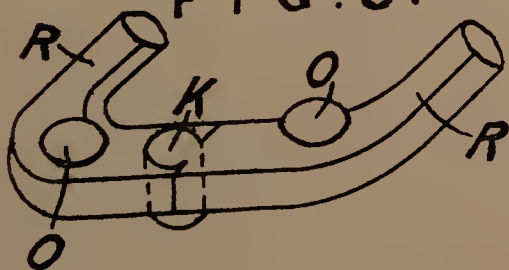


FIG. 9.

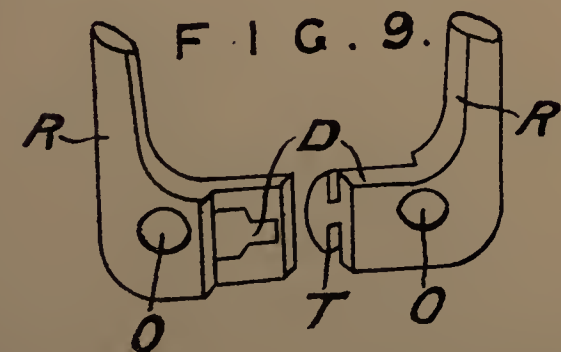
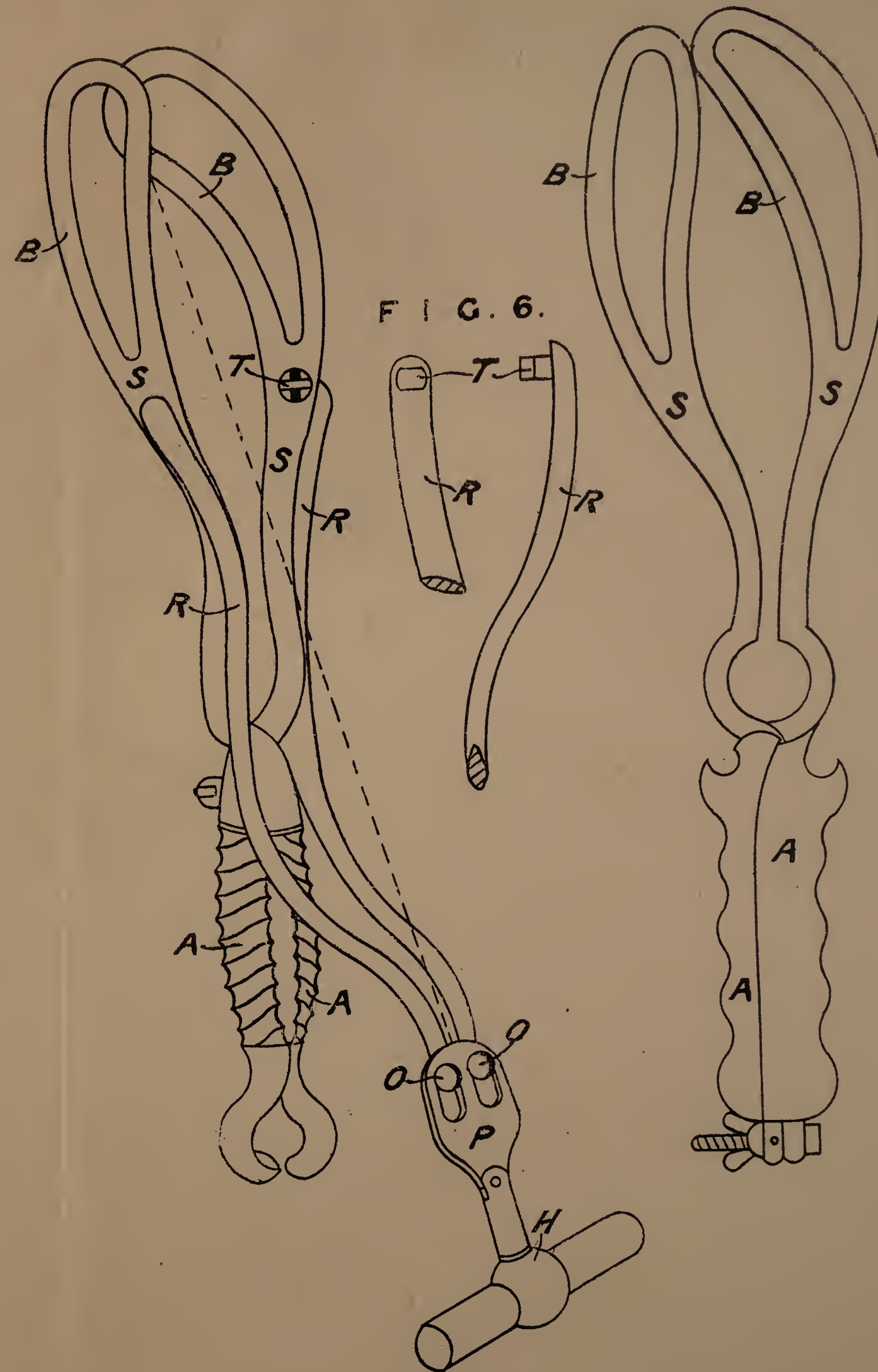


FIG. 6.



[This Drawing is a reproduction of the Original on a reduced scale.]

